

**THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:**

1. A compact smoke alarm assembly comprising:
  - a smoke detection chamber defined by a body having a plurality of  
5 openings for allowing airflow therethrough, the body having a sound inlet aperture;
  - a smoke detector mounted to the body for communication within the chamber;
  - an electrical circuit operatively connected to the smoke detector, the circuit  
10 providing an electrical signal when the smoke detector detects smoke in the chamber; and
  - a sound generating device mounted external to the chamber adjacent to the sound inlet aperture, the sound generating device operable in response to the electrical signal;
  - 15 wherein the smoke detection chamber is sized and shaped to cause resonance at the operating frequency of the sound generating device.
2. An assembly as claimed in claim 1 wherein the sound generating device is a piezoelectric disc.  
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3. An assembly as claimed in claim 2 further comprising an annulus surrounding the sound inlet aperture, the annulus supporting the piezoelectric disc.
4. An assembly as claimed in any one of claims 1 to 3 wherein the body is  
25 dimensioned such that the volume of the chamber is substantially in accordance to the Helmholtz formula at the operating frequency of the sound generating device, thereby providing an efficient acoustic coupling.

## 5. A compact smoke alarm assembly comprising:

a smoke detection chamber defined by a body having a plurality of openings for allowing airflow therethrough, the body having a sound inlet aperture;

5 a photoelectric sensor mounted to the body for communication within the chamber;

a light source mounted to the body for communication with the chamber;

an electrical circuit operatively connected to the smoke detector, the circuit providing an electrical signal when the smoke detector detects smoke in the chamber; and

10 a sound generating device mounted external to the chamber adjacent to the sound inlet aperture, the sound generating device operable in response to the electrical signal;

wherein the smoke detection chamber is sized and shaped to cause resonance at the operating frequency of the sound generating device.

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## 6. An assembly as claimed in claim 5 wherein the body comprises:

an upper wall;

a lower wall; and

20 a peripheral wall, the peripheral wall comprising a plurality of labyrinth members arranged in a partly overlapping circular pattern so as to substantially prevent the entry of light into the chamber while allowing sound to exit at high sound pressure levels.

7. An assembly as claimed in claim 6 wherein the sound generating device is a  
25 piezoelectric disc.

8. An assembly as claimed in claim 7 further comprising an annulus surrounding the sound inlet aperture, the annulus supporting the piezoelectric disc.
9. An assembly as claimed in any one of claims 6 to 8 wherein the body is  
5 dimensioned such that the volume of the chamber is substantially in accordance to the Helmholtz formula at the operating frequency of the sound generating device, thereby providing an efficient acoustic coupling.
10. A compact smoke alarm assembly substantially as hereinbefore described with  
10 reference to and as illustrated in the accompanying drawings.